

## NEW TAXA IN THE GENUS *MONARDA* (LABIATAE)

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During a biosystematic study of the genus *Monarda* (Scora, 1964) it became necessary to describe the following new taxa and to make one new combination.

***Monarda dressleri*** Scora, sp. nov. Herba perennis, gracilis erecta, altitudine 60–80 cm, pilis minutis puberulis, simplex vel ramosa; foliorum lamina lanceolatis, 23–45 mm longis, 11–21 mm latis, in apicem acuminatis, in basem obtusis vel rotundis, marginibus subserratis, supra pubescentibus pilis minutis appressis, subtus pubescentibus pilis minutis canescentibus, petiolis 4–8 mm longis; bracteis paucis foliaceis, ovatis lanceolatis, puniceis, glomerulis 20–30 mm latis, paucifloris, monocephalis; calycum tubis 8–13 mm longis, 13 venis, pubescentibus pilis minutis canescentibus, in ore dense hirsutis pilis 0.5 mm longis, lobis acutissimis 1.5–2.0 mm longis, glandulis elevatis; collarum coccinearum purpurearum saepius immaculatarum, tubis 25–30 mm longis, labia superiore 9–12 mm longa; staminibus inter fauces corollae 3–5 mm insertis; stylo glabro.

Type. 40 km W of Aldama, Tamaulipas, Mexico, *Dressler 1851* (MEXU 47528—holotype, MICH, MO).

*Monarda dressleri* is a member of the subgenus *Monarda* and is named for R. L. Dressler who has collected extensively in Tamaulipas.

*Monarda dressleri* has the habit of the *M. fistulosa* L. complex, but its corolla resembles more closely those of the larger flowered Mexican species of *M. pringlei* Fernald and *M. bartlettii* Standley. It differs from all the other Mexican species in the subgenus *Monarda* in its corolla color and its larger pollen size of about 20 per cent in diameter. It differs from its near relative *M. pringlei* in that it inhabits oak forests, has an evenly expanded corolla with a very pubescent upper lip and a stamen attachment of 3–5 mm depth in the corolla throat, while *M. pringlei* occurs on calcareous soil, has an abruptly expanded corolla with a slightly pubescent upper lip and a stamen attachment 6–7 mm deep. *Monarda dressleri* differs from the related *M. bartlettii* in leaf pubescence, in the narrower and shorter leaves, its stamen attachment and in the indument of the calyx lobes. *Monarda dressleri* is distinguished from *M. eplingiana* Standley in that the leaves are not membranaceous and the calyx lobes are twice as long and beset with stalked glands, while in *M. eplingiana* the calyx lobes are non-glandular. From *M. malloyi* Gilg it differs in that the latter grows near the borders of tropical forests, is of a more robust habit, has shorter calyx lobes which are non-glandular.

MONARDA CITRIODORA Cerv. ex Lag. The varieties and subspecies of *M. citriodora* may be identified with the aid of the following key.

Bracts subtending glomerules lanceolate to linear-lanceolate, gradually acuminate to a spinose bristle, not more than 4 mm wide, strongly reflexed from base.

ssp. *austromontana*

Bracts subtending glomerules oblong, abruptly acuminate to a spine-like bristle, or attenuate, commonly more than 4 mm wide, spreading horizontally, or forming a cup-like involucre, but not reflexed from base.

Foliage light green; inner bracts subtending glomerules densely pubescent with short white or purple hairs; the apex abruptly acuminate, bracts reflexed from middle and thus forming a cup-shaped involucre.

Leaves 25–60 mm long, 8–12 mm wide; bracts mostly wider than 5 mm; calyx tubes 7–14 mm long; unexpanded portion of corolla tube 7–10 mm long, the expanded portion 4–6 mm long; apex of upper corolla lip with 1 mm long hairs.....ssp. *citriodora* var. *citriodora*

Leaves (12)–20–35–(40) mm long, (3)–5–10–(14) mm wide; bracts not wider than 5 mm; calyx tubes 5–7 mm long; calyx lobes about 2–3 mm long; unexpanded portion of corolla tube 6–7 mm long, expanded portion 2–4 mm long; apex of upper corolla lip mainly glabrate.

ssp. *citriodora* var. *parva*

Foliage dark green; inner bracts subtending glomerules glabrate or sparingly pubescent with short hairs; the apex attenuate, spreading horizontally and not forming a cup-like involucre; calyx lobes rarely ciliate; upper half of corolla lip pubescent with 1–2 mm long hairs.

ssp. *citriodora* var. *attenuata*

MONARDA CITRIODORA Cerv. ex Lag. ssp. *austromontana* (Epling) Scora, com. nov. *M. austromontana* Epling, Madroño 3:29. 1935.

MONARDA CITRIODORA Cerv. ex Lag. ssp. CITRIODORA var. *parva* Scora, var. nov. Herba annua, erecta, altitudine 20–50 cm, caulis simplicis, pills minutibus puberulis; foliorum laminis lanceolatis vel oblongis, maximis (12)–20–35–(40) mm longis, (3)–5–10–(14) mm latis, in apicem abrupte acutis, in basem acuminatis vel obtusis, marginibus serratis vel subserratis, supra scabratis, subtus hirsutis pilis minutis; petiolis 2–8 mm longis; glomerulis verticillastris; bracteis exterioribus foliaceis, mediis oblongis, erectis, in apicem abrupte acuminatis et aristatis, pagina adaxilia dense pubescente pilis minutis, basis marginibus ciliatis, calycum tubis 5–7 mm longis, 15 venis, lobis aristatis 2–3 mm longis; corollis 14–19 mm longis, abrupte dilatatis; labia superiore 5–7 mm longa, incisa 0.5–1.0 mm, glabrata, rarissime puberula pilis 0.5–1.0 mm longis; labia inferiore 7–8 mm longa, lobo mediano 1–3 mm longo; staminibus glabris, inter fauces 1–3 mm insertis; stylo glabro; chromosomis  $n = 9$ ; oleis  $\alpha$ -pineno,  $\gamma$ -terpineno, heptanone, nonanale, thymole et carvacrole satis inhaerentibus.

Type. Near Sinton, San Patricio Co., Texas, *C. M. Rowell 4977* (WWF).

Specimens examined. Texas. Cameron Co.: Brownsville, *Tharp 1196* (US); *Ferris & Duncan 3131* (MO); Los Fresnos, *Wolff 2368* (TAES). Hidalgo Co.: San Juan, *Clover 5* (NY). San Patricio Co.: Welder Wildlife Refuge, *Scora 2222* (MICH); E of Sinton, *Powell 4977* (WWF); *Box 148* (WWF).

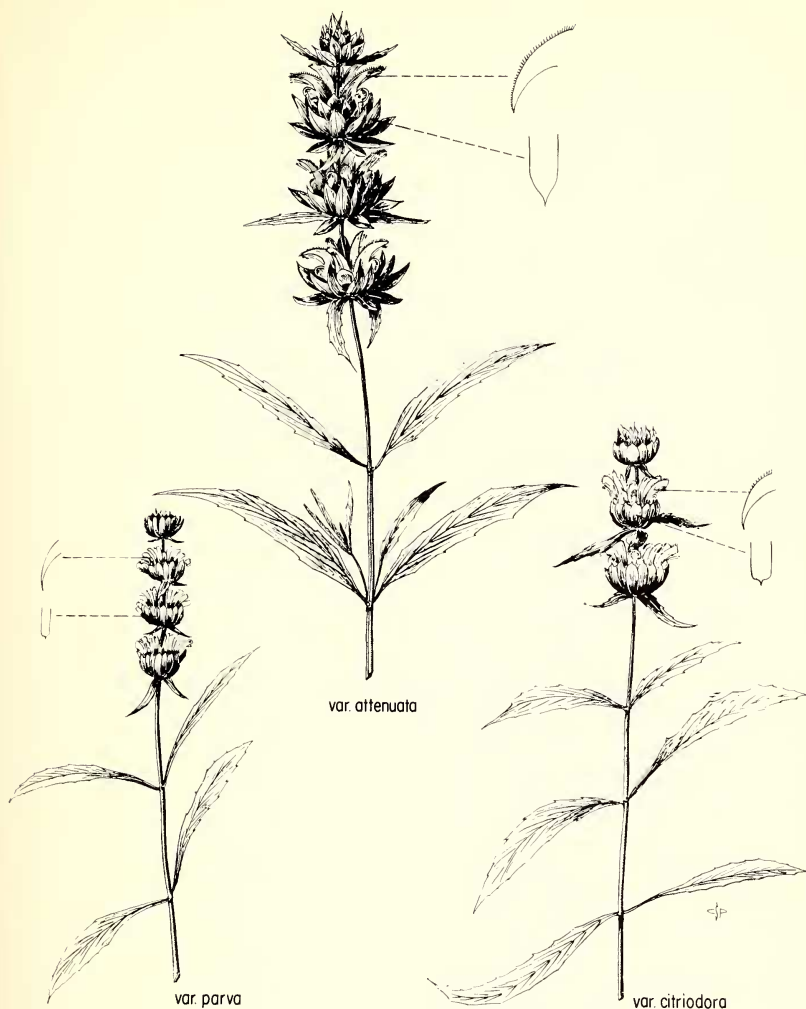


FIG. 1. Varieties of *M. citriodora* ssp. *citriodora*.

This variety is the "fairly well-defined but unnamed form in southern Texas" of McClintock and Epling (1942).

MONARDA CITRIODORA Cerv. ex Lag. ssp. CITRIODORA var. **attenuata** Scora, var. nov. Herba annua, erecta, altitudine 30–60 cm, caulibus virgatis, pilis minutibus puberulis; foliorum laminis lanceolatis interdum oblongis, maximis 30–65 mm longis, 4–13 mm latis, in apicem acutis vel obtusis, in basem angustatis, marginibus serratis, supra scabratis, subtus puberulis pilis minutis; petiolis 4–28 mm longis; glomerulis verticillastris; bracteis exterioribus foliaceis longioribus, mediis oblongis

rarius lanceolatis, in apicem attenuatis, pagina adaxilia glabrata, rarissime puberula pilis minutis albidis, basis marginibus ciliatis, calycum tubis 9–13 mm longis, 15 venis, lobis aristatis 3–7 mm longis; corollis roseis saepius immaculatis, 21–30 mm longis, abrupte dilatatis; labia superiore 9–12 mm longa, incisa 1.0–1.5 mm, pubescendum pilis 1–2 mm longis; labia inferiore 12–17 mm longa, lobo mediano 4–6 mm longo; staminibus glabris, inter fauces 2–4 mm insertis; stylo glabro; chromosomis  $n = 9$ ; oleis  $\alpha$ -pineno,  $\gamma$ -terpineno, heptanone, nonanale, thymole et carvacrole satis inhaerentibus.

Type. Near Musquiz, Coahuila, Mexico, *R. W. Scora 2340* (MICH—holotype, UCR).

Specimens examined. Mexico. Coahuila: Musquiz, *Marsh 155* (F); Sierra del Carmen, Canon de Sentenela, *Wyend & Mueller 524* (MO).

*Monarda citriodora* var. *attenuata* (fig. 1) is distinguished from var. *citriodora* (fig. 1) mainly by its more horizontally spreading bracts subtending the glomerules, their nearly glabrous adaxialbract surfaces, green coloration and the more attenuate bract apices. The calyx lobes have few or no lateral hairs and the corolla dimensions are larger than those of var. *citriodora*. Variety *parva* (fig. 1.) differs from var. *attenuata* in having the bracts subtending the glomerules cupped and not horizontally spreading, in their pubescence, whitish coloration, abrupt acuminate bract apices, shorter calyx lobes and smaller overall dimensions of stem, foliage, calyx tubes and corollas. It differs from var. *citriodora* in the almost always glabrous upper corolla lip, and the reduced corolla size, calyx tube, calyx lobe, number of glomerules, leaf size and plant height. Living cultures which were grown for several generations in the greenhouses and growth chambers at the University of Michigan Botanical Gardens to find if these differences were genetically fixed or mere environmental variations showed, that all these differences remained although internode length increased in var. *parva* when grown under greenhouse conditions.

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#### LITERATURE CITED

- MCCCLINTOCK, E. and C. EPLING. 1942. A review of the genus *Monarda* (Labiatae). Univ. Calif. Publ. Bot. 20:147–194.  
 SCORA, R. W. 1964. Interspecific relationships in the genus *Monarda* (Labiatae). Ph.D. dissertation (unpublished). Univ. of Michigan, Ann Arbor.

#### DOCUMENTED CHROMOSOME NUMBERS OF PLANTS

(See Madroño 9:257–258. 1949; 17:255. 1964)

*Aesculus californica* (Spach) Nutt.  $n = 20$ . California, Alameda Co., Univ. Calif. campus. *R. Lloyd 2633*, UC. Counted by R. Ornduff and R. Lloyd.